



**AMS**  
American Meteorological Society

## Supplemental Material

[© Copyright 2019 American Meteorological Society](#)

Permission to use figures, tables, and brief excerpts from this work in scientific and educational works is hereby granted provided that the source is acknowledged. Any use of material in this work that is determined to be “fair use” under Section 107 of the U.S. Copyright Act or that satisfies the conditions specified in Section 108 of the U.S. Copyright Act (17 USC §108) does not require the AMS’s permission. Republication, systematic reproduction, posting in electronic form, such as on a website or in a searchable database, or other uses of this material, except as exempted by the above statement, requires written permission or a license from the AMS. All AMS journals and monograph publications are registered with the Copyright Clearance Center (<http://www.copyright.com>). Questions about permission to use materials for which AMS holds the copyright can also be directed to [permissions@ametsoc.org](mailto:permissions@ametsoc.org). Additional details are provided in the AMS Copyright Policy statement, available on the AMS website (<http://www.ametsoc.org/CopyrightInformation>).

## Supplementary Material

Figure S1 shows the global annual mean net radiation flux for the reference runs and 10BC and 5SF cases in CGCM (atmosphere-ocean coupled model) and SOM (atmosphere-slab ocean coupled model) groups.

Figures S2a and S2b show the zonal mean changes in specific humidity flux density ( $q \cdot v$ ) caused by 10BC and 5SF in CGCM group at different levels. It is seen that 10BC (5SF) causes northward (southward) cross-equatorial moisture transport at the low level, which is the direct reason for the 10BC-induced northward and 5SF-induced southward shifts of the ITCZ.

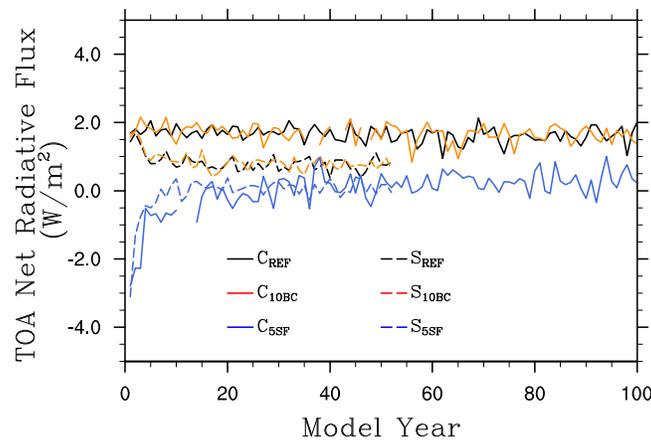


Figure S1. Net radiative flux ( $\text{W m}^{-2}$ ) at the TOA in CGCM (solid lines) and SOM (dashed lines).

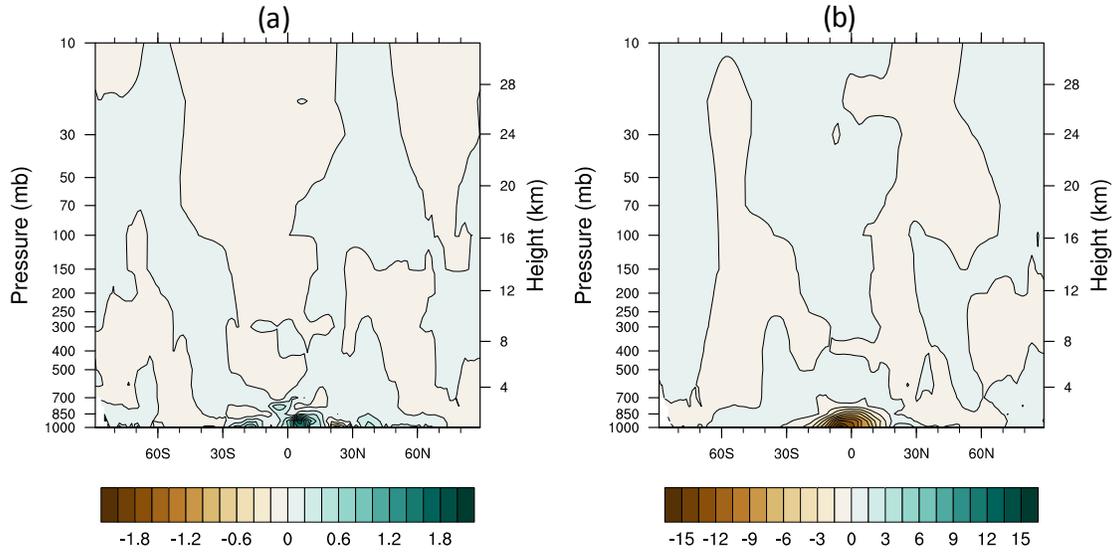


Figure S2. Latitude-altitude cross section of zonal-mean change in specific humidity flux density (northward positive,  $(\text{g kg}^{-1}) \cdot (\text{m s}^{-1})$ ) caused by (a) 10BC and (b) 5SF in CGCM group.